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**Datasheet for the decision
of 20 January 2020**

Case Number: T 1386/18 - 3.2.07

Application Number: 10840300.7

Publication Number: 2520315

IPC: A61L9/22, B03C3/40, B03C3/38

Language of the proceedings: EN

Title of invention:
METAL BELT-PLATE STRUCTURE REACTOR

Applicant:
Shanghai Tianyun Environmental Protection Technology Co., Ltd.

Headword:

Relevant legal provisions:

EPC Art. 56, 84, 123(2)
RPBA 2020 Art. 12(2), 13(1), 24, 25
RPBA Art. 12(4), 13, 15(1)

Keyword:

Claims - clarity (yes)
Amendments - added subject-matter (no)
Inventive step - (yes)

Decisions cited:

T 2227/15, T 0032/16, T 0634/16

Catchword:

Transitional provisions - applicability of Article 13(1) RPBA 2020 to cases where the summons to oral proceedings were notified before the entry into force of the RPBA 2020 (see point 1 of the Reasons)



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Case Number: T 1386/18 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 20 January 2020

Appellant: Shanghai Tianyun Environmental
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 2 January 2018
refusing European patent application No.
10840300.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman I. Beckedorf
Members: A. Cano Palmero
A. Pieracci

Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal within the prescribed period and in the prescribed form against the decision of the examining division to refuse the European patent application No. 10840300.7.
- II. The examining division held that the then main and only request was not allowable for lack of clarity and of inventive step of the claimed subject-matter in view of the disclosure of D1 (**US 4 381 927 A1**) in combination the common general technical knowledge of the person skilled in the art.
- III. At the outset of the proceedings the appellant sought grant of a patent on the basis of a new main request or of auxiliary requests 1 to 3.
- IV. In order to prepare the oral proceedings scheduled upon the appellant's request, the Board communicated its preliminary assessment of the case by means of a communication pursuant Article 15(1) RPBA 2007. The Board indicated that the main request and all auxiliary request were likely not to be admitted under Article 114(2) EPC and Article 12(4) RPBA 2007. In an *obiter dictum* the Board indicated that these requests, if admitted, would at least introduce a new objection in the sense of Article 123(2) EPC.
- V. In response to said communication, the appellant filed additional auxiliary requests 0, 1a, 2a and 3a.
- VI. Oral proceedings before the Board took place on 20 January 2020. For the details of the oral proceedings, in particular the matters discussed, reference is made to the minutes thereof.

The appellant, while withdrawing all previous requests, finally requested at the end of the oral proceedings

that the decision under appeal to be set aside and that the patent to be granted on the basis of auxiliary request 4, filed during the oral proceedings.

The order of the decision was given at the end of the oral proceedings.

- VII. According to the appellant the auxiliary request 4 meets the requirements of Articles 56, 84 and 123(2) EPC. The lines of argument are dealt with in detail in the reasons for the decision.
- VIII. Claim 1 of the current request (auxiliary request 4 filed during the oral proceedings) reads:

"A metal belt-plate structure reactor, comprising positive electrodes (101) having two ends and negative electrodes (102) having two sides, wherein every positive electrode (101) is located in the middle between two negative electrodes (102); characterized in that there are a total of n groups of positive electrodes (101), wherein n is a positive integer below 50, each of which is a component formed by several oxidation-resistant nickel-chromium alloy or iron-chromium aluminum alloy belts having a width of 1-2 mm and a thickness of 0.05-0.2 mm, with thin side faces and arrayed at an equal interval in a plane and for performing corona discharge; there are a total of n+1 negative electrodes (102) made from aluminum plates or stainless steel plates; the metal belt-plate structure reactor is also provided with several micro-discharge preventive conductor rails(103) made of aluminum bars

or stainless bars; the two ends of the positive electrode (101) are respectively fixed on the corresponding positions of the conductor rails (103); the several conductor rails (103) are electrically connected by anti-oxidation leads; the thin side faces of the metal belts face and are aligned with the plane of the negative electrode (102), wherein the thin side faces of the metal belts facing the plane of the negative electrode (102) are discharge side faces which perform corona discharge; the metal belt-plate structure reactor further comprises a metal housing (108) providing an air inlet and an air outlet; the negative electrodes (102) are located in the airflow direction between the air inlet and the air outlet; the two sides of each negative electrode (102) are fixed on the housing (108)."

Reasons for the Decision

1. Revised Rules of Procedure of the Boards of Appeal (RPBA 2020) - Transitional provisions

The present proceedings are governed by the revised version of the Rules of Procedure which came into force on 1 January 2020 (Articles 24 and 25(1) RPBA 2020), except for Articles 12(4) to (6) and 13(2) RPBA 2020 instead of which Articles 12(4) and 13 RPBA 2007 remain applicable (Article 25(2) and (3) RPBA 2020). The general applicability of the RPBA 2020 to the present proceedings includes Article 13(1) RPBA 2020, irrespective of the fact that the summons to oral proceedings was notified before 1 January 2020 (cf. T 2227/15, T 32/16 and T 634/16, none of them published in the OJ EPO).

2. *Clarity, Article 84 EPC.*

2.1 Under point 2 of the decision under appeal clarity of claims 1-6 had been objected by the examining division.

2.2 The Board, in view of the amendments made to these claims and substantially following the reasoning brought forward by the appellant *inter alia* under point II.1 of its statement of grounds of appeal, is convinced that the clarity objections, on which the decision under appeal was based within the meaning of Article 12(2) RPBA 2020, have been overcome and that no new clarity issues have been triggered by the current request. Rather, the current claims are considered clear in the sense of Article 84 EPC.

3. *Added subject-matter, Article 123(2) EPC*

3.1 The **description** has been amended, among others, by introducing the wording "and face" in the passage of original page 16, lines 3-4: "the thin side faces are aligned with and face the plane of the negative electrode".

3.1.1 According to the appellant, this amendment is based on the correct translation of the corresponding Chinese term present in page 10, line 14 of the original PCT Application No. PCT/CN2010/002083.

3.1.2 The Board, substantially following the appellant's arguments and in view of figures 1 and 3 of the application, regards this incorrectness of the translation as a plausible fact and therefore does not see an extension of subject-matter introduced by this amendment.

3.1.3 As far as the rest of the amendments carried out in the description is concerned, the Board cannot recognise any further issue as regards of extension of subject-matter beyond the original disclosure.

3.2 The appellant argues that the **claims** according to his final request have been amended taking as basis paragraphs [0017], [0041] and [0045] and figure 3 as originally filed. The Board sees in these passages sufficient basis for the amendments carried out and cannot recognise that any new objections are triggered by these amendments. The subject-matter of the claims meets therefore the requirements of Article 123(2) EPC.

4. *Inventive step, Article 56 EPC*

4.1 The Board notes that reasoned objections to inventiveness of the claimed subject-matter on which the decision under appeal was based are no longer valid in respect of the current claims.

4.2 With regard to the issue of inventive step of the claimed subject-matter according to the current request, the Board essentially follows the appellant's line of argumentation.

4.2.1 As submitted by the appellant in a convincing manner, document D1 (**US 4 381 927 A1**) represents the closest prior art and discloses a metal belt-plate structure reactor, from which the subject-matter of claim 1 differs *inter alia* in that the thin side faces of the metal belts are aligned with and face the plane of the negative electrode.

- 4.2.2 This enables a uniform corona discharge between the positive and the negative electrodes, which avoids the generation of ozone during the air sterilisation. In contrast, D1 presents a concentrated corona discharge occasioned by the needles 36 which delivers the undesired production of ozone.
- 4.2.3 Thus, starting from D1 the objective technical problem solved by the distinguishing features of D1 may be seen as providing a metal belt-plate structure reactor in which the generation of ozone is avoided.
- 4.2.4 None of the documents available in the prior art, specially not D1, shows or suggests such a configuration according to claim 1 in which the metal belts are disposed with the thin side faces aligned and facing the negative electrodes. Indeed, the available prior art shows only saw-tooth or needle-tip structured electrodes.
- 4.2.1 The skilled person, seeking to avoid the generation of ozone in the purification process, would have no motivation from the prior art to carry out the elaborated structural arrangements to the known reactor of D1 needed to arrive at the subject-matter of claim 1. Rather, the skilled person, in view of the available prior art, would only arrive at the subject-matter of claim 1 exercising an inventive skill.
- 4.3 As a consequence, the Board considers that the subject-matter of claim 1 of the current request involves an inventive step in the sense of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the examining division with the order to grant a patent in the following version:

Description:

Pages 1-21 received during the oral proceedings of 20 January 2020

Claims:

No. 1-7 received during the oral proceedings of 20 January 2020 (auxiliary request 4)

Drawings:

Figures 1-4 as originally filed.

The Registrar:

The Chairman:



G. Nachtigall

I. Beckedorf

Decision electronically authenticated